

## Portrait of the Sustainability Revolution

*Every generation needs a new revolution.*

—Thomas Jefferson

*We must not be afraid of dreaming the seemingly impossible if we want the seemingly impossible to become a reality.*

—Vaclav Havel

**I**N BORNEO, villagers are replacing polluting diesel generators with small-scale hydro-generators and tapping local streams to produce clean and affordable electricity for their communities.<sup>1</sup> In Astoria, Oregon, local government, businesses and residents have used ecological design practices to transform an abandoned toxic mill site into a convivial community.<sup>2</sup> In Bavaria, Germany, the world's largest solar power plant, a 30-acre facility generating 10 megawatts of electricity — enough to meet the demand of 9,000 German homes — is online.<sup>3</sup> And in Curitiba, Brazil, city planners have created a model public transportation system covering eight neighboring cities and carrying 1.9 million passengers a day.<sup>4</sup> Although these events may appear to be isolated incidents, they represent thousands of initiatives taking place worldwide that are the vanguard of the Sustainability Revolution.

Not since the Industrial Revolution of the mid-18th to mid-19th centuries has such a profound transformation with worldwide impact emerged onto the world stage. Like its industrial counterpart, the Sustainability Revolution is creating a pervasive and permanent shift in consciousness and worldview affecting all facets of society.

The Sustainability Revolution draws its significance and global impact from a wide spectrum of interests with common fundamental values. Like the Industrial Revolution, the Sustainability Revolution is far-reaching and is having a profound impact, shaping everything from the places we live and work to the foods we eat and the endeavors we pursue as individuals and as communities.

Though still largely underground and misunderstood, the Sustainability Revolution is affecting the economic, ecological and social aspects of societies worldwide. Amid the invasion of SUVs, Costcos, Wal-Mart's and supermarket chains, we see glimpses of this transformation in the increasing numbers of hybrid cars, wind turbines and solar panel installations; the resurgence of farmers' markets and organic foods in cities and towns across Europe and the US; the introduction of ecoliteracy curricula in some schools and universities; the building of cohousing projects that restore community ties; and the large number of grass-roots groups from around the world working on issues such as habitat restoration, climate change, labor rights, local currencies and the protection of local economies. These changes, though inconspicuous, are blazing a trail toward a new awareness that treats the fabric of life of our planet with respect and seeks to balance economic goals and ecological health.

The present unsustainable path marked by an unrelenting economy that methodically depletes the Earth's ecosystems will have to change. In 2003, for example, 11,000 cars were added to China's roads every day, a total of 4 million new cars in one year. At this pace, by 2015, 150 million cars are expected in China — 18 million more than were driven in the United States in 1999.<sup>5</sup> As Lester Brown points out, if Chinese car ownership and oil consumption were to equal US rates, 80 million barrels of oil a day above current

world production would be needed; and if Chinese per-person paper consumption were to match the US level there would not be enough paper (or forests) available.<sup>6</sup>

Clearly the Chinese, together with the rest of the over six billion people in the world, face a predicament that calls for a significant ecological, economic and social shift. The Sustainability Revolution presents an alternative that supports economic viability and healthy ecosystems by modifying consumption patterns and implementing a more equitable social framework.

## **Anatomy of Social Revolutions**

To better understand the structure of the Sustainability Revolution, we turn to the anatomy of social revolutions. From 1750-1850 the Industrial Revolution caused a lasting shift from an agricultural and commercial society relying on animals and simple tools to an industrial society based on machinery and factories. The Industrial Revolution was marked by technological innovations, increased production capacity and economic specialization. As with other social revolutions, the changes in the Industrial Revolution and the current Sustainability Revolution involve three distinct phases: genesis, critical mass and diffusion.

### **Genesis**

The genesis of the Industrial Revolution was in the accumulation of precious metals brought back to Europe from the New World. These commodities stimulated the creation of industry, expanded trade and established a money economy in Great Britain. The Sustainability Revolution dates back to the concepts first explored in 1972 at the United Nations Conference on the Human

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Environment in Stockholm, Sweden, and gained prominence in the 1987 Brundtland report, *Our Common Future*.

The Brundtland report created a framework for addressing ways of protecting the Earth's ecosystems while taking into consideration economic and social justice concerns. Sustainable development was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."<sup>7</sup>

### **Critical mass**

The critical mass phase of the Industrial Revolution involved the use of power resulting from the improvement of the steam engine by James Watt in 1769. This development had a profound impact on the efficiency of factory production, transportation services and the economic infrastructure of nation states. Although the Sustainability Revolution's critical mass has yet to fully materialize, key milestones were the 1992 Earth Summit in Rio de Janeiro, Brazil, and the development of the personal computer and the Internet.

The Rio summit brought together 182 world leaders and propelled sustainability onto the international stage. Through the Rio Declaration and Agenda 21, the summit developed frameworks for charting future actions. The personal computer and the Internet have had a significant impact on the Sustainability Revolution by facilitating the dissemination of information and the organization of sustainability-oriented groups, which now have better access to media outlets traditionally controlled by well-established institutions.

### **Diffusion**

Although the Industrial Revolution began in Great Britain, it spread throughout Europe and then to the United States and beyond. The use of electricity, the gasoline engine and factory-based production methods was rapidly adopted by other cultures. These changes resulted in urban centers that today are found worldwide.

The Sustainability Revolution emerged in the United States and European Union countries as they grappled with the limits of natural

resources and is quickly spreading to developing nations, though it has yet to become a pervasive mainstream phenomenon. Some of the most innovative projects in areas such as renewable energy, agriculture and finance are taking place in the developing nations. One example is a national biogas program in Thailand that converts animal waste into methane for electricity production.<sup>8</sup> Another project is the Grameen Bank in Bangladesh, which in 1976 through collateral-free loans to the very poor sparked the microcredit movement, which has spread to over 40 countries and proven to be a successful anti-poverty program for developing nations and for the inner cities of industrialized countries.<sup>9</sup>

In addition to such initiatives, there now is worldwide awareness of issues such as climate change, pollution, ozone depletion and habitat destruction that are international in scope and will require a concerted effort by all nations to resolve.

## **Movements and Revolutions**

Whereas movements tend to have narrower objectives and are led by a charismatic leader, such as Mahatma Gandhi in the non-violence movement and Martin Luther King in the civil rights movement, social revolutions have wider objectives and are led by a large and diverse number of individuals. The anti-globalization, organic foods, green building, renewable energy and other “green” movements all are working within the broader context of the Sustainability Revolution. Though including aspects of social movements, sustainability is in fact a revolution with a new value system, consciousness and worldview.

The Industrial Revolution was defined by technological breakthroughs including James Watt’s improved steam engine (1769), Edward Cartwright’s power loom (1783) and Eli Whitney’s cotton gin (1793). These inventions contributed to increased production and economic growth in the textile, iron, rail and steamship industries that have left an indelible mark on our current society. The impact of the Industrial Revolution has been broad and lasting.

The developments that have shaped the Sustainability Revolution have transformed the fields of communications (computers, the Internet, e-mail, wireless phones, digital cameras); finance (global trade, international stock and commodities markets); transportation (hybrid cars, overnight parcel delivery, lower-fare jet

travel); building (green building, renewable materials, solar energy); and medicine (imaging technology, human genome decoding, cloning); and led to the organization of citizens' groups working on causes such as stream restoration, pesticide control, renewable energy and organic produce.

The Sustainability Revolution evolved as a reaction to the Industrial Revolution's degradation of the environment and our well-being. The rampant environmental impacts and the recognition of the limits of natural resources combined to produce a new ethos embodied in the Sustainability

Revolution. Government environmental clean-up programs such as Superfund and protection programs such as the Clean Air Act, Clean Water Act, Safe Drinking Water Act and Endangered Species Act were created as a result of concern for the damaging effects of the Industrial Revolution.

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## **The Five Characteristics of the Sustainability Revolution**

The Sustainability Revolution has five key characteristics or dimensions. These are: (1) remarkable similarities among sustainability groups in overall intentions and objectives; (2) a large and diverse number of such groups; (3) a wide range of issues addressed by these groups; (4) leadership by a group of decentralized visionaries rather

than a single charismatic figurehead; and (5) varying modes of action: oppositional and alternative.

### **Similar Intentions and Objectives**

The mainstream often confuses sustainability with ecological concerns, pitting conservation groups against business interests. This situation leads to a deadlock, with polarized viewpoints and inability to compromise. Sustainability has thus been framed in a narrow perspective, often associated with a single issue backed by proponents with a liberal mindset. Although sustainability often is marked by environmental causes and protest campaigns, its values represent a broad context of issues that have spread underground in all sectors of society throughout the world.

Although there are some disagreements among sustainability groups, there are remarkable similarities in their intentions and objectives. These include: concern for the environment, the economy and social equity; understanding of our dependence on the health of natural systems (clean air, clean water, healthy soils and forests, biodiversity) for our survival and well-being; knowledge of the limits of the Earth's ecosystems and the detrimental impact of unchecked human activities (population, pollution, economic growth); and a long-term, intergenerational perspective in actions and goals.

### **Large and diverse**

The Sustainability Revolution is international in scope. Its ideas are promoted by environmental and social service groups, nongovernmental organizations, foundations and loosely organized community groups. All facets of society, including government, industry, the private sector, education and the arts, and all socioeconomic backgrounds, nationalities, religions and cultural affiliations are represented.

Paul Hawken estimates that there are 30,000 sustainability groups in the US and tens of thousands of groups worldwide.<sup>10</sup> Social researcher Paul Ray describes sustainability advocates as "Cultural Creatives" and estimates there are 50 million in the US

and 80 to 90 million in the European Union, with a \$230 billion market in the US and \$500 billion worldwide.<sup>11</sup>

### **Range of issues**

The Sustainability Revolution has no single ideology but instead a collection of values centered around healthy ecosystems, economic viability and social justice. Sustainability encompasses a wide array of issues including: conservation, globalization, socially responsible investing, corporate reform, ecoliteracy, climate change, human rights, population growth, health, biodiversity, labor rights, social and environmental justice, local currency, conflict resolution, women's rights, public policy, trade and organic farming. These issues cross national boundaries, socioeconomic sectors and political systems, touching every facet of society and driven by life-affirming values that influence policies and initiatives at the local, regional, national and international levels.

### **Decentralized leadership**

As with other social revolutions, the leadership in the Sustainability Revolution is made up of hundreds of thousands of citizens and community leaders from around the world. As Hawken reminds us, "No one started this worldview, no one is in charge of it, no orthodoxy is restraining it .... [It is] unrecognizable to the American media because it is not centralized, based on power, or led by charismatic white males."<sup>12</sup>

The strength of the Sustainability Revolution lies in its decentralized, nonhierarchical organizational pattern, which encourages diversity and alternative approaches to the ecological, economic and social challenges of our time. The Sustainability Revolution has spread remarkably quickly and effectively into cultures worldwide.

### **Oppositional and alternative actions**

While some sustainability groups oppose trends seen as detrimental to their core values, others present alternative models. Oppositional actions focus on areas such as globalization,

biotechnology and habitat destruction, while alternative actions include voluntary simplicity, supporting local economies and community-building.

The oppositional component of the Sustainability Revolution is increasingly visible through demonstrations at conferences such as the G-8 Summit in Genoa, Italy (2001), the World Trade Organization (WTO) in Seattle, Washington (1999) and Cancun, Mexico (2003) and the Free Trade Area of the Americas (FTAA) in Quebec, Canada (2001) and Miami, Florida (2003).

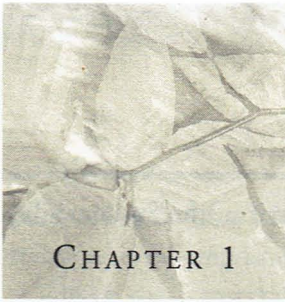
Nevertheless, important shifts are occurring in a much less dramatic fashion through alternative approaches ranging from local renewable energy projects to Community Supported Agriculture (CSA) programs to corporate initiatives implementing sustainable frameworks such as The Natural Step, which provides a scientifically based organizational model.<sup>13</sup> At the international level, in 2004 the World Social Forum attracted over 80,000 social activists from 132 countries to Mumbai, India, to discuss issues from globalization to patriarchy, militarism and racism, challenging participants: "Another World is Possible! Let's Build It."<sup>14</sup>

## **A Revolution of Interconnections**

The Sustainability Revolution provides a vital new approach to tackling the issues confronting the world today. By taking a comprehensive look at the interconnections among ecological, economic and equity issues ranging from global warming to pollution, health and poverty, we are more likely to seek and implement lasting solutions.

The Sustainability Revolution marks the emergence of a new social ethos emphasizing the web of relationships that link the challenges we currently face. As Carolyn Merchant points out, "An ecological transformation in the deepest sense entails changes in ecology, production, reproduction, and forms of consciousness .... In the ecological model, humans are neither helpless victims nor arrogant dominators of nature, but active participants in the destiny of the webs of which they are a part."<sup>15</sup>

By understanding the characteristics and intentions of the Sustainability Revolution, we will be better prepared to tackle complex problems requiring an open-minded and cooperative approach.



## CHAPTER 1

# The Birth of Sustainability

*As to methods there may be a million and then some, but principles are few. The man who grasps principles can successfully select his own methods. The man who tries methods, ignoring principles, is sure to have trouble.*

—Ralph Waldo Emerson

*Small shifts in deeply held beliefs and values can massively alter societal behavior and results — in fact, may be the only things that ever have.*

—Dee Hock

## The Context

AT THE DAWN OF THE 21ST CENTURY, a new revolution is gaining strength — the Sustainability Revolution. The purpose of this work is to help those inside this revolution, as well as those presently outside, better understand where sustainability is coming from and where it might be going.

We will begin with a “pre-history” of the Sustainability Revolution, paying special attention to its relationship with its main precursor, the environmental movement of the 1960s and 1970s. Next we will follow the emergence of the Sustainability Revolution in the 1980s and its extraordinary flowering beginning in the 1990s. Then we will examine the reasons for the methodology we will use to grasp the revolution’s profound and fruitful diversity. We then will be in a

position to create a multidimensional portrait of the Sustainability Revolution today.

## **Environmentalism: The Precursor to Modern Sustainability**

At the foundation of modern sustainability lies the human connection with nature, expressed first in America through the New England transcendentalist movement of the 1800s. Transcendentalists such as Bronson Alcott, Margaret Fuller, George Ripley — and especially Henry David Thoreau and Ralph Waldo Emerson — pointed to the significance of nature as a mystery full of symbols and spirituality.

As Emerson stated, “The Transcendentalist adopts the whole connection of spiritual doctrine. He believes in miracle, in the perpetual openness of the human mind to new influx of light and power; he believes in inspiration, and in ecstasy.”<sup>1</sup>

In his book *Nature* (1836), Emerson viewed the natural world as a source of guidance and a mirror that reflects back the soul. He described our relationship with nature as having seven facets: commodity, beauty, language, discipline, idealism, spirits and prospects.<sup>2</sup> Each of these facets, in turn, supports the intuition and inspiration of the individual.

Emerson’s description of the natural world as a mirror was enhanced by the work of his friend and contemporary, Thoreau. In *Walden* (1854), Thoreau described his experience of living a simple existence in a hut next to Walden Pond near Concord, Massachusetts. Thoreau’s observations of nature highlight the virtues of libertarianism and individualism. As he stated, “I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived.”<sup>3</sup>

The works of Thoreau and Emerson helped establish the transcendentalist movement’s view of nature as a teacher, which was enhanced by other writers and naturalists in the 20th century. One of these was the early 20th century American inventor, writer, naturalist and

conservationist John Muir, who played a pivotal role in bringing attention to the importance of preserving America's wildlands.

Unlike the transcendentalists — who saw nature as a way to reflect the divine aspect within themselves — Muir stressed the systematic character of the natural world and the resulting importance of protecting such vital resources as forests and water supply. He also stressed the crucial role of wilderness for recreation and uplifting the human spirit: "Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to body and soul alike."<sup>4</sup>

In books such as *Our National Parks* (1901) and *The Yosemite* (1912), Muir traced the impact on America's wildlands of activities like sheep and cattle grazing. In this way, he influenced his contemporaries, including President Theodore Roosevelt, to establish a series of conservation programs and to create Yosemite National Park. Muir also was involved in establishing the Sequoia, Mount Rainier, Petrified Forest and Grand Canyon national parks. In 1892, he and his colleagues founded the Sierra Club, which has had a lasting influence on conservation issues, to "do something for wildness and make the mountains glad."<sup>5</sup>

Following Muir's lead, the 1940s American conservationist Aldo Leopold extended the notion of nature as not merely a mirror and teacher but an ecosystem directly tied to our survival. For Leopold, conservation called for an ethical approach based on respect for the environment.

In his essay, "The Land Ethic," in *A Sand County Almanac* (1949) he stated:

An ethic may be regarded as a mode of guidance for meeting ecological situations so new or intricate, or involving such deferred reactions, that the path of social expediency is not discernible to the average individual. Animal instincts are modes of guidance for the individual in meeting such situations. Ethics are possibly a kind of community instinct in-the-making.<sup>6</sup>

Although this was written over fifty years ago, Leopold's vision still stands as a milestone whose sensibility and concern for ethics underlie and inform the Sustainability Revolution today.<sup>7</sup>

American writer and naturalist Rachel Carson's publication of *Silent Spring* in 1962 set off an alarm heard through all levels of society. Carson's depiction of the devastating impact of toxins and pollutants on the environment caused the general public and government agencies to reevaluate the limits of ecosystems. Her description of the dangers of agricultural pesticides for animals and humans made clear that our survival is linked to the viability of ecosystems.

Seminal works such as *A Sand County Almanac* and *Silent Spring* became icons in the environmental field and were adopted by the Sustainability Revolution because of their powerful fusion of environment and ethics. The ecological awareness raised by Carson and other environmentalists in the 1960s culminated in 1970 with the first Earth Day, which attracted over 20 million people to enthusiastic and peaceful rallies throughout the United States.<sup>8</sup>

Senator Gaylord Nelson of Wisconsin, founder of the first Earth Day, called for a national "Environmental Teach-in" aimed mostly at college campuses. The event became what he later called a "grassroots explosion." In Nelson's view, the success of Earth Day stemmed from "the spontaneous, enthusiastic response at the grassroots. Nothing like it had ever happened before .... They simply organized themselves. That was the remarkable thing that became Earth Day."<sup>9</sup>

Earth Day served to educate the general public about the impact of industrial society on the environment. It also began the process that led the US government to pass laws such as the Clean Air Act and the Clean Water Act protecting the environment and to establish regulatory agencies including the Environmental Protection Agency (EPA), whose purpose was to monitor more closely the environmental impact of business and industry.

Thus, "pre-sustainability" environmentalism created significant constituencies at both the popular and the official levels and united four dominant concerns: 1) an awareness of the profound spiritual links between human beings and the natural world; 2) a deep under-

standing of the biological interconnection of all parts of nature, including human beings; 3) an abiding concern with the potential damage of human impact on the environment; and 4) a strongly held commitment to make ethics an integral part of all environmental activism.

### **Contemporary Environmentalism: The Roots of Sustainability**

A landmark event in the history of contemporary environmentalism was the 1972 United Nations Conference on the Human Environment in Stockholm, Sweden. This gathering internationalized the concerns of the American Earth Day events and focused on the regional pollution, especially the acid rain problems, of northern Europe.

Even more important, the Stockholm conference marked the first step toward what we see today as the Sustainability Revolution. This global forum began the attempt to find positive links between environmental concerns and economic issues such as development, growth and employment.<sup>10</sup> As a result of the Stockholm conference, numerous national environmental protection agencies were established, as well as the United Nations Environment Programme (UNEP), whose mission is to “provide leadership and encourage partnerships in caring for the environment by inspiring, informing and enabling nations and people to improve their quality of life without compromising that of future generations.”<sup>11</sup>

During the 1970s Wes Jackson of The Land Institute and other pioneers brought to light the significance of sustainable practices. By the late 1970s the disposal of hazardous materials by burning them or dumping them underground or into waterways had become unacceptable. The “out of sight, out of mind” approach to toxic waste disposal, culminating in the contamination of Love Canal, where President Jimmy Carter declared a State of Emergency in 1978, spawned the creation by the US Congress of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), commonly known as Superfund. Superfund deals with

identifying and cleaning up hazardous waste sites and allows residents adversely affected by these sites to sue the federal government. Superfund created a new industry in waste clean-up and restoration services.<sup>12</sup>

By the early 1980s, sustainability had begun to gain wider public attention, chiefly as a result of the publication of Robert Allen's *How to Save the World* (1980) and Lester Brown's *Building a Sustainable Society* (1981). Brown began with an incisive analysis of the economic predicament facing the world because of our careless inattention to, and disregard for, fundamental ecological limitations. He outlined a comprehensive strategy for moving from what he called "un-sustainable" practices to a global relationship with nature that reconfigures not only the human relationship with the Earth and its biological diversity but also the structure of values for integrating ecological and economic issues.

### **The Emergence of Sustainability: Brundtland (1987) and Rio (1992)**

The emergence of sustainability in its contemporary form stems from the UN's creation in 1983 of The World Commission on Environment and Development (WCED), headed by Gro Harlem Brundtland, former prime minister of Norway.

The General Assembly asked the commission:

- to propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond;
- to recommend ways concern for the environment may be translated into greater cooperation among developing countries and between countries at different stages of economic and social development and lead to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment, and development;
- to consider ways and means by which the international community can deal more effectively with environmental concerns; and
- to help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with

the problems of protecting and enhancing the environment, a long-term agenda for action during the coming decades, and aspirational goals for the world community.<sup>13</sup>

In 1984 Worldwatch Institute published its first *State of the World* annual report. This report provided a global perspective on the relation between the world's resource base and the dynamics of economic development: "We are living beyond our means, largely by borrowing against the future."<sup>14</sup> Subsequent Worldwatch annual reports helped create a global consciousness about the interconnection of ecological, economic and social issues — an awareness soon thrust into international prominence by the publication of the Brundtland report, *Our Common Future*, in 1987.

The most remembered quote from the Brundtland report defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."<sup>15</sup> While this definition undoubtedly is important, the Brundtland report helped define the Sustainability Revolution in two even more significant ways. Institutionally, it created the first framework for concerted action to protect the Earth's life support systems while promoting both economic and social justice goals. Conceptually, the report contained the first articulation of the key to contemporary sustainability — the importance of evaluating any proposed initiative with reference to the interaction of three fundamental criteria: ecology/environment, economy/employment and equity/equality, known today as the Three Es.

Ecology and economy are becoming ever more interwoven — locally, regionally, nationally, and globally

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into a seamless net of causes and effects.<sup>16</sup>

[S]ustainable development requires meeting the basic needs of all and extending to all the opportunity to fulfill their aspirations for a better life. A world in which poverty is endemic will always be prone to ecological and other [i.e., economic] catastrophes.<sup>17</sup> Hence, our inability to promote the common interest in sustainable development is often a product of the relative neglect of economic and social justice within and amongst nations.<sup>18</sup>

In 1992, five years after the publication of the Brundtland report, the United Nations Conference on Environment and Development (UNCED), known as the Earth Summit, took place in Rio de Janeiro, Brazil. The Earth Summit brought together more than 180 world leaders — delegates from UN agencies and international organizations — as well as world media and hundreds of nongovernmental organizations to build on the 1972 Stockholm conference and the 1987 Brundtland report.

Those attending the Earth Summit agreed to the 27 principles on environment and development of the Rio Declaration — which “made it plain that we can no longer think of environment and economic and social development as isolated fields” — and adopted a global program for action on sustainable development through Agenda 21:

A comprehensive blueprint for a global partnership, Agenda 21 strives to reconcile the twin requirements of a high quality environment and a healthy economy for all people of the world, while identifying key areas of responsibility as well as offering preliminary cost estimates for success.<sup>19</sup>

The Earth Summit also generated: 1) the Statement of Principles on the Management, Conservation and Sustainable Development of

All Types of Forests; 2) the UN Framework Convention on Climate Change; 3) the UN Convention on Biological Diversity; and 4) a recommendation for an international convention on desertification.<sup>20</sup>

Following the Earth Summit, President Bill Clinton in 1993 established the President's Council on Sustainable Development (PCSD), headed by Ray Anderson, chairman and CEO of Interface, Inc. Building on the work of the Earth Summit, the Council provided a domestic agenda for sustainable development. The mission of the PCSD was to:

- Forge consensus on policy by bringing together diverse interests to identify and develop innovative economic, environmental and social policies and strategies;
- Demonstrate implementation of policy that fosters sustainable development by working with diverse interests to identify and demonstrate implementation of sustainable development;
- Get the word out about sustainable development; and
- Evaluate and report on progress by recommending national, community, and enterprise level frameworks for tracking sustainable development.<sup>21</sup>

In 1999, after more than 40 public meetings and workshops, the Council completed its third and final report, *Towards a Sustainable America: Advancing Prosperity, Opportunity, and a Healthy Environment for the 21st Century*. The report recommended 140 actions that aimed to "improve our economy, protect our environment, and improve our quality of life. Many of these actions address important current issues like sprawl, climate change, urban renewal, and corporate environmental responsibility."<sup>22</sup>

In 2002 the World Summit on Sustainable Development (WSSD) conference was held in Johannesburg, South Africa, with the intention of having a review ten years after the 1992 Earth Summit in Rio. The outcomes of the conference included a Plan of Implementation and The Johannesburg Declaration on Sustainable Development. The Plan of Implementation designed a means for

acting on the topics discussed at the Earth Summit, such as poverty eradication, consumption and production issues and health concerns. The Johannesburg Declaration emphasized the current issues facing the world community and the significance of multilateralism and practical implementation strategies.<sup>23</sup>

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Whereas the Rio summit focused on the environmental issues of sustainability, the WSSD conference more effectively integrated economic and equity issues into the discussions. WSSD also included greater participation from women, youth, nongovernmental organizations and scientists.<sup>24</sup> The establishment of partnerships known as Type II Partnerships was supported at WSSD as another vehicle for effective program implementation.

In reviewing these key conferences and milestones, we see how the Sustainability Revolution became a

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diverse, worldwide, multicultural and multiperspective revolution built around the Three Es: 1) ecology/environment; 2) economy/employment; and 3) equity/equality. We now are in a position to examine these Three Es and their structural interaction while also introducing what might be considered the Fourth E: education.

### **The Core of Contemporary Sustainability: The Three Es**

We will be using the term “sustainability” in two senses. On the one hand, it will refer to the multifaceted revolution based on the Three Es and their simultaneous interaction. On the other hand, the term will refer to the ever-evolving body of ideas, observations and hypotheses about the myriad challenges to which the revolution is seen as a creative response.

In this dual context, the key innovation of sustainability is its expansion of the earlier focus of environmentalism on the preservation and management of ecology/environment (the First E) to include on an equal basis issues related to economy/employment (the Second E) and equity/equality (the Third E). Because of this expanded focus, the Sustainability Revolution offers the possibility of a much broader coalition for positive change both within and among societies. Rather than pitting “tree huggers” against lumberjacks — so often the trope of environmental discourse — sustainability seeks a context in which the legitimate interests of all parties can be satisfied to a greater or lesser extent, always within the framework of concern for equity.

At the global level, sustainability is oriented toward solutions that do not doom developing countries to a permanently secondary place in the world economy under the rubric of “environmental protection.” If, for example, the industrial nations want Brazil to stop the catastrophic decimation of the Amazon rainforest, they must help Brazil find an alternative path to economic development — preferably one that will contribute to the eradication of the brutal *favelas* in which so many poor Brazilians live.

With this background understood, we now can turn to a brief examination of each of the Three Es.

### **The first E: ecology/environment**

There are three crucial issues in ecological sustainability: 1) short-term versus long-term perspective; 2) piecemeal versus systemic understanding of the indispensability of ecosystems for the viability of human existence; and 3) the concept of built-in limits to the human impact that ecosystems can sustain.

Environmental sustainability requires the long-term viability of our resource use, especially in areas such as resource extraction, agriculture, transportation, manufacturing and building. At the same time, civilized human existence necessarily includes such basics as clean air and water, heating and cooling and food that is safe to eat — all of which are dependent on the successful functioning of major ecosystems.

In this context, the concept of ecosystem services becomes significant. Broadly speaking, these can be defined as “the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfill human life .... These services include purification of air and water; mitigation of floods and droughts; detoxification and decomposition of wastes ... [and] pollination of crops and natural vegetation ....”<sup>25</sup>

The existence of limits on ecosystems can be simply illustrated by the ecological crisis and long-term economic dislocation created by the destruction of oceans by overfishing, forests by clearcutting and fresh water by toxins and pollutants.

### **The second E: economy/employment**

Economic sustainability departs from traditional environmentalism in its recognition of the importance of providing secure, long-term employment without jeopardizing the health of ecosystems. Creating a healthy environment, free of pollution and toxic waste, and simultaneously providing the basis for a dynamic economy that will endure for an extended period are viewed as complementary rather than conflicting endeavors.

It is crucial to note that what Paul Hawken and Amory and Hunter Lovins call “natural capital, made up of resources, living systems and ecosystem services” is as important for economic development as the more conventionally recognized human, financial and manufactured forms of capital.<sup>26</sup> By pointing out this key (though often ignored) aspect of economic development, sustainability makes a more realistic assessment of the dynamics of long-term economic activity than does conventional economics — an achievement made all the more powerful and appealing by a simultaneous awareness of the need for social justice.

### **The third E: equity/equality<sup>27</sup>**

This third aspect of sustainability adds a sense of community to the existing mix of ecologically based, long-term economic develop-

ment. Community-building recognizes the importance of cooperation and concern for one's neighbor. At a fundamental level, members of a sustainable community understand that the well-being of the individual and the larger community are interdependent. Social cohesion, compassion and tolerance are more likely to thrive in an environment where all members of the community feel that their contribution to the whole is appreciated and where an equitable distribution of resources is recognized as essential for the long-term viability of the society.

At the level of the nation-state, equity/equality addresses the fair distribution of such resources as food, affordable housing, health care, education, job training and professional opportunities. Globally, inequities such as famine and homelessness are seen as problems of distribution rather than lack of resources. Just and equitable resource allocation is not simply ethical but essential for the well-being of the larger community — in this case, the entire world.

### **The three Es plus one: education<sup>28</sup>**

The Three Es and their interaction are made even more powerful by an active commitment to public education. Education is the catalyst for helping everyone understand the dynamic nature of the interrelationship of the Three Es. Through education we gain knowledge with which to overcome the cognitive and normative — and hence emotional — obstacles to understanding our global dilemma. Through education, sustainability can become firmly established within the existing value structure of societies while simultaneously helping that value structure evolve toward a more viable long-term approach to systemic global problems.

### **The Methodology: Fundamental Principles**

It is in this context of the Three Es Plus One that we turn to the question of how to create a nuanced, dynamic and multidimensional portrait of the Sustainability Revolution today.

This endeavor can best be undertaken through an analysis of the fundamental principles that each organization identifying itself with sustainability lays out at the beginning of its public self-definition — whether in brochures, booklets and other standard media or on web-sites in cyberspace.

Why focus on fundamental principles? By definition, a principle is “a guiding sense of the requirements and obligations of right conduct.”<sup>29</sup> A statement of principles provides the “guiding sense,” or basic direction, that any organization will use in orienting itself to the world and in making decisions in concrete situations. Principles play a key role in setting the context for the ethical choices that organizations make.

The focus on principles can help us make sense of sustainability in the wake of the explosion of groups identifying themselves with the revolution since the publication of the Brundtland report in 1987. The flowering of organizations worldwide claiming adherence to sustainability illustrates the popularity of this self-identification. An Internet search on any aspect of sustainability yields thousands of individuals, organizations and government agencies professing allegiance to sustainable practices. The best way to gain a well-rounded perspective on their multiple viewpoints is to focus on the fundamental principles these groups articulate.

We see five reasons to focus on these fundamental principles:

1. A statement of principles is almost always one of the first messages these groups present and therefore would seem very important to the groups themselves.
2. Although in some cases there are gaps, there is a critical structural connection between the principles and the actions these groups attempt to take.
3. These principles present the authors' perspectives in their own words.
4. Examining statements of principles is a convenient and concise tool for the analysis of sustainability as a whole.

5. To the best of our knowledge, this is the first comprehensive analytical study of these statements of principles.

### **Criteria for Selecting Principles**<sup>30</sup>

We have used five criteria for selecting the organizations and individuals whose fundamental principles we will examine. These criteria are:

1. obtaining a wide range of viewpoints on sustainability
2. including perspectives from individuals, organizations and government agencies
3. incorporating cross-cultural viewpoints on sustainability by examining work done by groups from a variety of different cultures and nation-states
4. examining industries that have a close association with our basic human needs (such as food, shelter and energy) and natural resources (such as petroleum, wood and fisheries)
5. including sustainability perspectives from various levels — local, regional, national, global and from diverse fields of endeavor including science, philosophy, business and architecture

Using these criteria, we have chosen to analyze sustainability principles in five basic categories. These are:

1. community
2. commerce
3. natural resources
4. ecological design
5. the biosphere

Although education originally was designated as a distinct category, it has been integrated into all the others. Since it provides a way to understand and evaluate the perspectives of all the principles, education is at the foundation of sustainability.<sup>31</sup>

## Principles as Songlines

For millennia, the Australian Aborigines have relied on a system of Songlines, tracks created by their ancestors that define the physical landscape and serve as guideposts during their travels. These landmarks conjure stories illustrating the laws the Aborigines try to follow for living with nature and navigating their seemingly barren and inhospitable land.

They refer to the Songlines as the “Way of the Law” or the “Footprints of the Ancestors” — providing both a land ethic and a compass for connecting in a harmonious way with the land and their communities, current and past:

[E]ach totemic ancestor, while travelling through the country, was thought to have scattered a trail of words and musical notes along the line of his footprints, and ... these Dreaming-tracks lay over the land as ‘ways’ of communication between the most far flung tribes .... A song ... was both map and direction-finder. Providing you knew the song you could always find your way across country .... In theory, at least, the whole of Australia could be read as a musical score. There was hardly a rock or creek in the country that could not [be] or had not been sung. One should perhaps visualize the Songlines as a spaghetti of Iliads and Odysseys, writhing this way and that, in which every ‘episode’ was readable in terms of geology.<sup>32</sup>

The principles of sustainability are like the Songlines of the Aborigines. They represent the footprints of the various groups that make up the Sustainability Revolution. Like the Songlines, these statements of principles articulate a group’s values, archive its history and indicate the future direction of its actions. Understanding these statements can shed light on the motivations of the groups in the Sustainability Revolution and provide a way of tracking the evo-

lution of their core values over time. Like the Songlines, then, statements of principles act as both a tracking device — describing the route already traveled — and a compass — pointing the way to the future.